

AVIRIS OVERVIEW ABSTRACT

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The Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) is a National Aeronautics and Space Administration (NASA)-sponsored Earth-observing imaging spectrometer designed, built, and operated by the Jet Propulsion Laboratory (JPL). AVIRIS acquires flight data from the Q-bay of a NASA ER-2, operated at the NASA Ames Research Center. This imaging spectrometer measures the total upwelling radiance from 400 to 2450 nm in the electromagnetic spectrum through 224 channels at 10-nm spectral intervals. Data are acquired as 11- by ≤ 100 -km images with 20- by 20-m spatial resolution. These data are rigorously calibrated for their spectral, radiometric, and geometric characteristics.

An example of AVIRIS data sets acquired over Mount Shasta in northern California is given in Slide 1. The front panel of this image presents the spatial content of three AVIRIS radiance channels. The upper and right panels of the image display the 224 spectral channels from the upper and right margins of the data set. Slide 2 shows the 224 individual spectral images of Mount Shasta measured from 400 to 2450 nm at 10-nm intervals. In this sequence of images, the transition in the spectral reflectance of snow from high to low in the region from 1000 to 1200 nm is measured. Aspects of the spectral signatures of clouds and several volcanic rock units are also apparent in this image.